REMARKS

In the Office Action dated September 19, 2002, the Examiner has set forth a requirement for restriction under 35 U.S.C. §121, alleging that the subject matter defined by the claims of the present invention represents the following five separate and distinct inventions:

I. Claims 1-7, 28-38, drawn to enriched preparations of human undifferentiated embryonic stem cells, methods of preparing undifferentiated human ES cells, classified in class 435, subclass 325, 364, 366, for example.

II. Claims 8-27, 39-68, drawn to differentiated human progenitor neural cell lines, a method for inducing somatic differentiation of stem cells *in vitro*, and methods for producing an enriched preparation of human ES derived neural progenitor cells classified in class 435, subclass 325, 364, 366, 368, 377, for example.

III. Claims 69-74, drawn to methods of transplanting ES derived neural progenitor spheres, classified in class 435, subclass 325, 364, 366, 368, 377.

IV. Claims 75-78, drawn to a method for inducing somatic cells in vivo from ES cell derived somatic precursors, classified in class 435, subclass 325, 364, 366, 368, 377, for example.

V. Claims 79-85, drawn to methods of producing a stable graft of neural of neural cells, classified in class 435, subclass 325, 364, 366, 368, 377, for example.

In order to be fully responsive to the Examiner's requirement for restriction, Applicants provisionally elect to prosecute the subject matter of Group II, Claims 8-27 and 39-68 directed to differentiated human progenitor neural cell lines, a method for inducing somatic differentiation of stem cells *in vitro*, and methods for producing an enriched preparation of human ES derived neural progenitor cells, for continued examination herein. Applicants reserve the right to file one or more divisional applications directed to the non-elected subject matter in this application.

However, pursuant to 37 C.F.R. §§1.111 and 1.143, Applicants hereby traverse the Examiner's requirement for restriction and request reconsideration thereof in view of the following remarks.

An Examiner's authority to require restriction is defined and limited by statute:

> If two or more independent and distinct inventions are claimed in one application, the Commissioner may require the application to be restricted to one of the inventions.

35 U.S.C. § 121, first sentence (emphasis added). The implementing regulations of the Patent and Trademark Office include the mandate that restriction is appropriate only in cases presenting inventions which are both independent and distinct, 37 C.F.R. §§1.141-142. Without a showing of independence and distinctness, a restriction requirement is unauthorized. In the present application, the claims which the Examiner has grouped separately are not "independent and distinct" so as to justify the restriction requirement.

The Examiner alleges that Groups I and II are distinct as they are of separate uses. The Examiner contends that the Group I and any of Groups III-V are related as product and process of use, and are shown as allegedly distinct. The Examiner also contends the Groups II and III are related as product and process of use and are shown as allegedly distinct. The Examiner further alleges that the Group II and Group IV are mutually exclusive and independent. Furthermore, the Examiner alleges each of the methods in the Groups II or IV requires a separate and materially different protocol. The Examiner also alleges the Group III and either of Groups IV-V are mutually exclusive and independent. Furthermore, the Examiner alleges each of the methods in the Group II or IV-V requires a separate and materially different protocol. Finally, the Examiner contends that the Groups IV and V are mutually exclusive and independent. Furthermore, the

Examiner alleges each of the methods in the Group IV or V requires a separate and materially different protocol.

Applicants respectfully submit that the claimed subject matter is directed to an independent and distinct invention as defined in 35 U.S.C. § 121. The claimed invention is related to methods of cultivation and propagation and production of differentiated cells derived from undifferentiated human embryonic stem cells,. In particular it relates to the production of human ES cells capable of yielding somatic differentiated cells *in vitro*, and committed progenitor cells such as neural progenitor cells capable of giving rise to mature somatic cells including neural cells and/or glial cells and uses thereof. The subject matter of Group I is drawn to enriched preparation of human undifferentiated embryonic stem cells which are capable of proliferation *in vitro* and differentiation to neural progenitor cells, neuron cells or glial cells required in Group II, and method of preparing undifferentiated human embryonic stem cells for differentiation into neural progenitor cells in Group II. The subject matter of Group II is drawn to differentiated committed human progenitor cell line capable of differentiation and propagation into mature neurons or glial cells said cell line derived from undifferentiated human embryonic stem cells of Group I, a method for inducing somatic differentiation of stem cells *in vitro*, and methods for producing an enriched preparation of human ES derived neural progenitor cells. Thus, Group I and II are interrelated and interdependent. Moreover, the subject matter in Group I and the methods in Groups III-V are interdependent and interrelated. For example, the methods in Groups III-V embody the concept of Group I, and the methods in Groups III-V use the cells derived from Group I. More specifically, the methods in Group III use the enriched preparation of cells from Group II.

Moreover, the subject matter in Group II and the method in Group III are interdependent and interrelated in the present invention. For example, the method in Group III embodies the concept of Group II. The subject matter in Group II and IV are also interdependent or interrelated, for example, the method in Group IV employs the concept of Group II. Group II contains the source and protocol required for the ES cells in Group IV, which are prepared *in vitro* and applied *in vivo*. Moreover, the subject matter in Group II and the method in Groups IV are functionally related, i.e. inducing somatic cells from embryonic stem cells derived from human somatic precursors. The subject matter in Group III and either of Groups IV-V are interdependent and interrelated; for example, the method in Group V embodies the concept of Groups IV and III, and the method in Group IV embodies the concept of Group III. Moreover, the subject matter in Groups III and IV-V are functionally related, i.e. inducing somatic cells from embryonic stem cells derived from human somatic precursors. The subject matter in Group IV and V are interdependent and interrelated; for example, the methods in Group V embody the concept of Group IV. Moreover, the subject matter in Group IV and V are functionally related, i.e. inducing somatic cells *in vivo* from embryonic stem cells derived from human somatic precursors.

Furthermore, the Restriction Requirement is not in compliance with the MPEP. It is noted that Groups II-V are classified in the same class and subclasses. Group I and Groups II-V are classified in the same class insofar as subclasses are within the scope of the subclasses of Groups II-V. Attention is directed MPEP § 808.02, which states "where however, the classification is the same and the field of search is the same and there is no clear indication of separate future and field of search, no reasons exist for dividing among related inventions". As shown hereinabove, the classifications of the various groups overlap. Moreover, the field of

search of the various alleged groups are the same and the U.S. Patent and Trademark Office has not provided any evidence of separate future classifications for this field of search. Thus, in accordance with the MPEP, there is no reason for dividing among these related inventions.

Therefore, Applicants respectfully submit that the subject matter Groups I-V are linked by a single inventive concept – they are merely different aspects of a single invention. Groups I-V are not "independent and distinct".

Applicants respectfully submit that the courts have recognized that it is in the public interest to permit applicants to claim several aspects of their invention together in one application, as the applicants have done herein. The CCPA has observed:

> We believe the constitutional purpose of the patent system is promoted by encouraging applicants to claim, and therefore to describe in the manner required by 35 U.S.C. §112 all aspects as to what they regard as their invention, regardless of the number of statutory classes involved.

In re Kuehl, 456 F.2d 658, 666, 117 U.S.P.Q. 250, 256 (CCPA 1973). This interest is consistent with the practical reality that a sufficiently detailed disclosure supporting claims to one aspect of an invention customarily is sufficient to support claims in the same application to other aspects of the same invention.

Applicants respectfully suggest that in view of the continued increase of official fees and the potential limitation of an applicant's financial resources, a practice which arbitrarily imposes restriction requirements may become prohibitive and thereby contravene the constitutional purpose to promote and encourage the progress of science and the useful arts. Moreover, under the regulatory changes as a consequence of the General Agreement on Trade and Tariffs (GATT), applicants are required, to conduct simultaneous prosecution, as here, requiring excessive filing costs, or to otherwise compromise the term of related patent assets.

It is vital to all applicants that restriction requirements issue only with the proper statutory authorization, because patents issuing on divisional applications which are filed to prosecute claims that the Examiner held to be independent and distinct can be vulnerable to legal challenges alleging double patenting. The third sentence of 35 U.S.C. §121, which states that a patent issuing on a parent application "shall not be used as a reference" against a divisional application or a patent issued thereon, does not provide comfort to applicants against such allegations. The Court of Appeals for the Federal Circuit has declined to hold that § 121 protects a patentee from an allegation of same-invention double patenting, Studiengesellschaft Kohle GmbH v. Northern Petrochemical Co., 784 F.2d 351, 355, 288 U.S.P.Q. 837, 840 (Fed. Cir. 1986). In Gerber Garment Technology Inc. v. Lectra Systems Inc., 916 F.2d 683, 16 U.S.P.Q. 2d 1436 (Fed. Cir. 1990), the court held that §121 does not insulate a patentee from an allegation of "obviousness-type" double patenting, and in fact affirmed the invalidation on double patenting grounds of a patent that had issued from a divisional application filed following a restriction requirement. Furthermore, it is far from clear that the step of filing a terminal disclaimer is available to resolve a double patenting issue that arises after the issuance of a patent on the divisional application.

All these considerations indicate that the imposition of a restriction requirement with inadequate authority can lead to situations in which an applicant's legitimate patent rights are exposed to uncertainty and even extinguished. Accordingly, to protect a patentee's rights and to serve the public interest in the legitimacy of issued patents, Applicants respectfully urge the Examiner not to require restriction in cases such as the present application wherein various aspects in a unitary invention are claimed.

Finally, Applicants respectfully submit that a determination to make the pending restriction requirement final must evidence the patentable distinctness of all defined groups, one from the other, as presented by the Examiner.

In view of the foregoing comments, it is respectfully urged that the Examiner reconsider and withdraw the requirement for restriction and provide an action on the merits with respect to all the claims.

Respectfully submitted,

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